CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.CECTC/NCC/QC/2021-22

Date: 18.04.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Bruhath Bangaluru Mahanagara Palike**
Agency	**NCC Limitted**
Name of Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Wet Mix Macadam
Date of Testing	18.04.2021

Result : Flakiness Index = **14.85%**

Elongation Index = **10.78%**

Result : Combined Flakiness & Elongation index **25.63%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 35%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.

Executive Engineer
Sub Division

Infra Support Engineering Consultants Pvt. Ltd. - 92 Bengaluru

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No: CECTC/NCC/QC/2021-22

Date: 18.04.2021

Aggregate Impact Value

IS: 2386 Part IV

Client	Bruhath Bangaluru Mahanagara Palike
Agency	NCC Limited
Name of Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Type of Mix	Wet Mix macadam
Date of Testing	18.04.2021

Asst. Executive Engineer
Project In-Charge

No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	389	385	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	83	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	305	299	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)$%	21.73	21.59	22.34	21.89

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Lab No.: CECTC/NCC/QC/2021-22 Date 21.04.2021

FIELD DENSITY TEST BY SAND REPLACEMENT METHOD
(IS : 2720 - Part 28)-1974

Name of Client	:	Bruhath Bengaluru Mahanagara Palike.
Name of Contractor	:	NCC Limited
Name of Work	:	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Date of Testing	:	21.04.2021
Material Source	:	Wet Mix Macadam
		Max.Dry Density g/cc — 2.27
		Optium Moisture Content (%) — 6.20
		Bulk Density of Sand g/cc(ys) — 1.35 g/cc
		Wt. of Sand in Cone gms — 335 grams

Asst. Executive Engineer
BBMP, Bangalore - 92

DETERMINATION OF WET DENSITY

Test Holes No's	1	2
Chainage/Location	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Wt of the Moist soil from excavated hole = W	2051	2120
Wt.of Cylinder+Sand before pouring (gm) (w1)	7494	7534
Wt.of Sand in the cone (gm) (w2)	335	335
Wt.of the Cylinder and sandfilling the excavated hole (w4)	5992	5984
Wt of the sand in the excavated hole wb=w1-w4-w2	1167	1215
Volume of Sand in Hole = (v=wb/Ys)=cm^3	864.4	900.0
Insitu Bulk density Wet excavated soil Y=w/v	2.37	2.36
Moisture Content (%)	5.50	5.00

DETERMINATION OF DRY DENSITY

Field dry Density (g/cc)	2.25	2.24
Field compaction achieved (%)	99.1	98.8
Required Compaction (%)	98	98

Infra Support Engineering Consultants Ltd. Bangaluru
Reviewed

For CIVIL EXPERTS
Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2021-22

Date : 20.04.2021

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Bruhath Bangaluru Mahanagara Palike**
Agency : **NCC Limitted**
Name of Work : Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location : Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Date of Testing : 20.04.2021
Material Type : Wet Mix Macadam

Oven Dry.Wt 13420

IS Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	416	416	3.1	96.9	95-100
22.4	4358	4774	35.6	64.4	60-80
11.2	2745	7519	56.0	44.0	40-60
4.75	1869	9388	70.0	30.0	25-40
2.36	1463	10851	80.9	19.1	15-30
0.600	1274	12125	90.4	9.6	8-22
0.075	965	13090	97.5	2.5	0-8

BBMP, Bangalore - 02

Note:

1. *The report shall not be reproduced, except in full, without the written approval of the laboratory.*
2. *The results indicated above are based on the tests carried out on the samples received in the laboratory.*

Ultra Support Engineering Consultants Pvt. Ltd. Bengaluru

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL EXPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2021-22

Date: 20.04.2021

Aggregate Impact Value
IS: 2386 Part IV

Client	**Bruhath Bangaluru Mahanagara Palike**
Agency	**NCC Limitted**
Name of Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Type of Mix	Wet Mix macadam
Date of Testing	20.04.2021

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	389	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	307	301	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	20.94	21.08	21.82	**21.28**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory

Asst. Engineer

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Lab No.: CECTC/NCC/QC/2021-22

Date 24.04.2021

FIELD DENSITY TEST BY SAND REPLACEMENT METHOD
(IS : 2720 - Part 28)-1974

Name of Client	:	**Bruhath Bengaluru Mahanagara Palike.**
Name of Contractor	:	**NCC Limited**
Name of Work	:	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Date of Testing	:	24.04.2021
Material Source	:	Wet Mix Macadam
Max.Dry Density g/cc		2.27
Optium Moisture Content (%)		6.20
Bulk Density of Sand g/cc(ys)		1.35 g/cc
Wt. of Sand in Cone gms		335 grams

Asst. Executive Engineer
Project Implementation Zone
BBMP, Bangalore - 92

DETERMINATION OF WET DENSITY

Test Holes No's	1	2
Chainage/Location	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450	Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Wt of the Moist soil from excavated hole = W	2044	2120
Wt.of Cylinder+Sand before pouring (gm) (w1)	7490	7545
Wt.of Sand in the cone (gm) (w2)	332	335
Wt of the Cylinder and sandfilling the excavated hole (w4)	5992	5984
Wt of the sand in the excavated hole wb=w1-w4-w2	1166	1226
Volume of Sand in Hole = (v=wb/Ys)=cm^3	863.7	908.1
Insitu Bulk density Wet excavated soil Y=w/v	2.37	2.33
Moisture Content (%)	5.50	5.00

DETERMINATION OF DRY DENSITY

Field dry Density (g/cc)	2.24	2.22
Field compaction achieved (%)	98.8	97.9
Required Compaction (%)	98	98

Infra Support Engineering Consultants Pvt. Ltd. Bengaluru

Revetaved

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2021-22

Date : 22.04.2021

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Bruhath Bangaluru Mahanagara Palike**
Agency : **NCC Limitted**
Name of Work : Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location : Chandra Café to Vishnu Park LHS & RHS Ch:0 to 450
Date of Testing : 22.04.2021
Material Type : Wet Mix Macadam

Oven Dry.Wt 13398

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	447	447	3.3	96.7	95-100
22.4	4325	4772	35.6	64.4	60-80
11.2	2746	7518	56.1	43.9	40-60
4.75	1857	9375	70.0	30.0	25-40
2.36	1454	10829	80.8	19.2	15-30
0.600	1274	12103	90.3	9.7	8-22
0.075	965	13068	97.5	2.5	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.

BBMP, Bangalore

Infra Support Engineering Consultants Pvt. Ltd. Bengaluru

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

Client:	[illegible]
Agency:	[illegible]
Name of Work:	[illegible]
Location:	[illegible]
Technical Reference:	[illegible]
Type of Mix:	[illegible]
Date of Testing:	[illegible]

Result:- Flakiness Index = [illegible]%

Elongation Index = [illegible]%

Result:- Combined Flakiness & Elongation index: [illegible]%

Comments:

— Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam

Note:

1 The report shall not be reproduced, except in full, without the written approval of the laboratory.

2 The results reflected above are based on the tests carried out on the samples received in the laboratory.

For CIVIL EXPERTS

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No: CECTC/NCC/QC/2020-21

Date: 24.03.2021

Specific Gravity And Water Absorption Test

IS: 2386 Part III-1963 RA2016

Client	Bruhath Bengaluru Mahanagara Palike.
Agency	NCC Limited
Name of the Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Amma Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
Type of Mix	Bituminous Macadam
Date of Testing	24.03.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2016	2022	
2	Weight of basket suspended in water	W_2 g	752	752	752	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1268	1264	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2022	2020	2019	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	754	756	749	
6	Weight of oven dried aggregate	W_4 g	2010	2010	2011	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.666	2.659	2.685	2.675
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.709	2.694	2.714	2.711
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.60%	0.50%	0.40%	0.50%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Kononakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL EXPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.:CECTC/NCC/QC/2020-21

Date: 24.03.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Bruhath Bengaluru Mahanagara Palike.
Agency	NCC Limited
Name of Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Aranna Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
Technical Referenc	IS 2386(Part 1) 1963 (RA 2016)
Type of Mix	Bituminous Macadam
Date of Testing	24.03.2021

Result : Flakiness Index = **15.23%**

Elongation Index = **10.96%**

Result : Combined Flakiness & Elongation index **26.19%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 35%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples recieved in the laboratory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Infra Support Engineering Consultants Pvt. Ltd. Bengaluru

Reviewed

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2020-21

Date: 24.03.2021

Aggregate Impact Value

IS: 2386 Part IV-1963 RA 2016

Client	**Bruhath Bengaluru Mahanagara Palike,**
Agency	**NCC Limited**
Name of the Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
Type of Mix	Bituminous Macadam
Date of Testing	24.03.2021

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	368	372	360	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	286	289	275	
4	Aggregate Impact value = percent fines	22.28	22.31	23.61	
	$100^* (W_2/W_1)$%				22.74

mments:

Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

test report should not be reproduced except in full, without written approval of the laboratory
esults indicated above are based on the tests carried out on the samples recieved in the laboratory

Bengaluru

For CIVIL EXPERTS

Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway | Building Material Testing | Structural Strengthening Solution
Quality Control | Assessment | Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No. CECTC/MCC/QC/2020-21

Date: 24.03.2023

TEST REPORT

Client	:	Bruhath Bengaluru Mahanagara Palike.
Agency	:	MCC Limited
Name of Work	:	Whitetopping Velahanka from Sharadaipuram First Cross Cottage To Amma Bakery Junction
Location	:	Chandra Café to Kanti Sweets- 1345 & 1345 Ch(0.00 to 450.00)
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	24.03.2023

The results of the tests conducted on the bitumen sample using for Bituminous Macadam

Sl. No	Description	Test Results	Requirement as per 18/7/2013
1	Penetration at 25 °C, 1/10 mm	60	60 - 70
2	Softening point, °C	46	Min. 45
3	Ductility at 27°C, cm	> 100	Min. 50
4	Flash Point, °C	312	Min. 220

Assistant Engineer
Quality Control Division
Bangalore - 92

Note:
→ This test report should not be reproduced except in full, without written approval of the laboratory.
→ The results indicated above are based on the tests carried out on the samples received in the laboratory

For CIVIL EXPERTS
Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Kononakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2020-21 Date: 01.04.2021

DETERMINATION OF RATE OF SPREAD TACK COAT

CLIENT	:	Bruhath Bengaluru Mahanagara Palike.
AGENCY	:	NCC Limited
NAME OF THE WORK	:	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
LOCATION	:	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
DATE OF TESTING	:	01.04.2021

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	mt	0.45 X 0.45	0.45 X 0.45
Area of Plate (a)	Sq.m	0.2025	0.2025
Intial Wt of empty Plate (b)	Kg	1.632	1.629
Final weight of plate after application of prime /Tack Coat (c)	Kg	1.684	1.683
Weight of Prime/Tack Coat (d=c-b)	Kg	0.0520	0.0540
Rate of spread of prime /tack coat	kg/Sq.m	0.257	0.267
Average	kg/Sq.m	0.262	
Specified Limit	kg/Sq.m	0.25 Kg/sq.m	

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

Asst. Executive Engineer
Project Division
Bangaluru

Reviewed

for CIVIL EXPERTS
Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL EXPERTS

CONSULTANTS & TESTING CENTER

Highway | Building Materials Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Road Cracking / Structural Design & Drawings
Soil Stabilization and Mixing Services | Non - Destructive Testing

Aggregate Gradation Test

Client	Bruhath Bengaluru Mahanagara Palike
Agency	NCC Limited
Name of the work	Widening, Widening from Nayandahalli Flyer Check College To Kengeri Railway Junction
Location	Outside Old to New Steel [illegible]
Type of Mix	Bituminous Macadam
Date of Testing	[illegible]

Sieve Analysis of Aggregate

IS Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade II as per MORTH	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Gradation satisfies Grade II MORTH specifications

Sieve Analysis of Sample

IS Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade II as per MORTH	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Gradation satisfies Grade II MORTH specifications

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory.
- The results indicated above are based on the tests carried out on the samples received in the laboratory.

For CIVIL EXPERTS

Authorised Signature

#176, Sri Ranga Complex, Amruthe Nagar Main Road, New Bank Colony, Kammanahalli, Bangalore - 560 062.
Mobile : +91 [illegible] | Tel/Fax : 080 2552 2565 | Email : civilexperts.ch@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No: CECTC/NCC/QC/2020-21 Date: 24/03/2021

Specific Gravity And Water Absorption Test

IS: 2386 Part III-1963 RA2016

Client	**Bruhath Bengaluru Mahanagara Palike,**
Agency	**NCC Limited**
Name of the Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Aroma Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch.0.00 to 4.50/0.0
Type of Mix	Bituminous Macadam
Date of Testing	24.03.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2016	2022	
2	Weight of basket suspended in water	W_2 g	752	752	752	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_3$ g	1268	1264	1270	
4	Weight of saturated surface dry aggregate in air	W_5 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_5 - W_3)$ g	748	754	750	
6	Weight of oven dried aggregate	W_4 g	2010	2010	2011	
7	Specific Gravity	$W_4/(W_5-W_3)$	2.687	2.666	2.681	2.684
8	Apparent Specific gravity	$W_4/(W_4-W_3)$	2.709	2.694	2.714	2.711
9	Water Absorption	$((W_5-W_4)*100)/W_4$	0.30%	0.40%	0.45%	0.37%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

For CIVIL EXPERTS

Authorised Signatory

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL EXPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No:CIECTC/NCC/QC/2020-21

Date: 24.03.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Bruhath Bengaluru Mahanagara Palike.
Agency	NCC Limited
Name of Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Amma Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
Technical Reference	IS 2386(Part 1) 1963 (RA 2016)
Type of Mix	Bituminous Macadam
Date of Testing	24.03.2021

Result : Flakiness Index = 13.52%

Elongation Index = 9.74%

Result : Combined Flakiness & Elongation index 23.26%

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 35%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples recieved in the laboratory

For CIVIL EXPERTS

Authorised Signatory

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Kananakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway | Building Material Testing | Structural Strengthening Solutions
Quality Control | Assurance | Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No.: CECTC/NCC/QC/2020-21 Date: 24.05.2021

Aggregate Impact Value

IS: 2386 Part IV-1963 RA 2016

Client:	Brihath Bengaluru Mahanagara Palike.
Agency	NCC Limited
Name of the Work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Aeorna Bakery Junction
Location:	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 456.00
Type of Mix:	Bituminous Macadam
Date of Testing	24.05.2021

Sl No.	Details	Trial No. 1	2	3	Average
1	Weight of aggregate sample filling the cylindrical measure = W_1 g	368	372	360	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	83	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	285	287	273	
4	Aggregate Impact value = percent fines	22.55	22.85	24.17	
	100* (W_2/W_1)%				23.19

Comments:

— Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note:

— This test report should not be reproduced except in full, without written approval of the laboratory

— The results indicated above are based on the tests carried out on the samples recieved in the laboratory

For CIVIL EXPERTS

Authorised Signature

1174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Kananakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highways / Building Material Testing / Structural Strengthening / Soil Investigation / Concrete Testing & Control / Bituminous / Metals / Water Proofing Chemicals Supply & Services / Soil Stabilization and Blasting Services / Non - Destructive Testing

Job No: CXE/IC/NCC/QC/2020-21 Date: 24/03/2021

TEST REPORT

Client	:	Bruhath Bengaluru Mahanagara Palike,
Agency	:	NCC Limited
Name of Work	:	Whitetopping Pavements from Sheshadripuram First Grade College To Aruna Bakery Junction
Location	:	Chandra Café to Kami Sweets- 1515 to 2515 CH(LH) to 45(LH)
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	24/03/2021

The results of the tests conducted on the bitumen sample using for Bituminous Macadam

Sl. No	Description	Test Result	Requirement as per MORTH
1	Penetration at 25 °C, 1/10 mm	63	60 - 70
2	Softening point, °C	48	Min. 45
3	Ductility at 27°C, cm	> 100	Min. 50
4	Flash Point, °C	310	Min. 220

Asst. Executive Engineer
Quality Control Division
Yelahanka Zone
BBMP

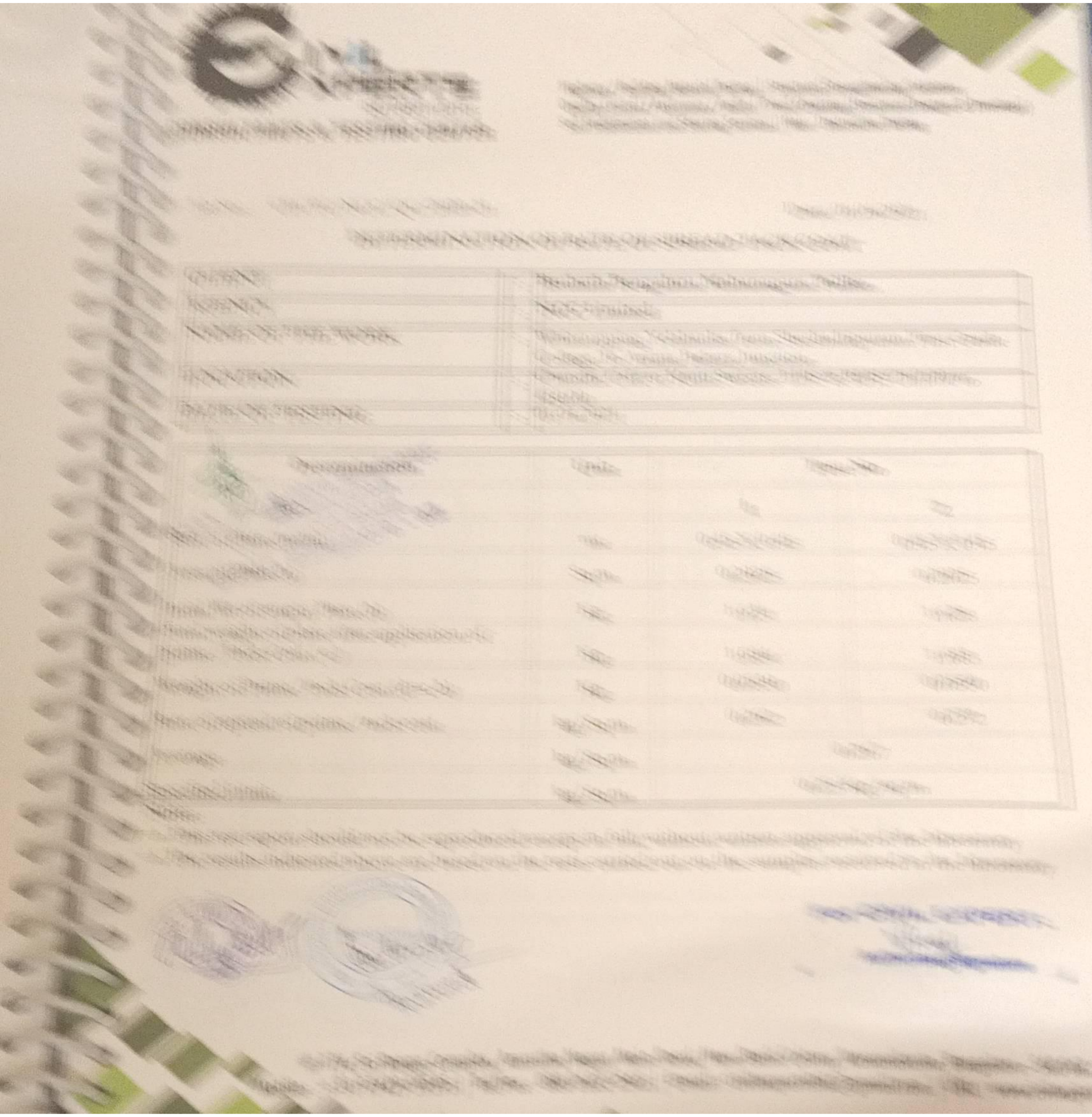
Note:
→ This test report should not be reproduced except in full, without written approval of the laboratory
→ The results indicated above are based on the tests carried out on the samples received in the laboratory

Received

For CIVIL EXPERTS
Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Kononakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner



Scanned by TapScanner

CIVIL EXPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

Job No. CECTC/NCC/QC/2020-21

Date: 27.03.2021

Aggregate Gradation Test
IS : 2386 Part I-1963 RA2016

Client	**Bruhath Bengaluru Mahanagara Palike.**
Agency	**NCC Limited**
Name of the work	Whitetopping Yelahanka from Sheshadripuram First Grade College To Arama Bakery Junction
Location	Chandra Café to Kanti Sweets- LHS & RHS Ch:0.00 to 450.00
Type of Mix	Bituminous Macadam
Date of Testing	27.03.2021

5250 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	189	3.60	3.60	96.40	90-100	
13.2	1147	21.85	25.45	74.55	56-88	
4.75	2186	41.64	67.09	32.91	16-36	
2.36	925	17.62	84.70	15.30	4-19	
0.3	337	6.42	91.12	8.88	2-10	
0.075	165	3.14	94.27	5.73	0-8	

Total Weight of Sample: 5050 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	154	3.05	3.05	96.95	90-100	
13.2	1258	24.91	27.96	72.04	56-88	
4.75	2041	40.42	68.38	31.62	16-36	
2.36	985	19.50	87.88	12.12	4-19	
0.3	326	6.46	94.34	5.66	2-10	
0.075	189	3.74	98.08	1.92	0-8	

Note:
→ This test report should not be reproduced except in full, without written approval of the laboratory
→ The results indicated above are based on the tests carried out on the samples received in the laboratory

Reviewed

for CIVIL EXPERTS
Authorised Signature

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.
Mobile : +91 97429 59595 | Tel/Fax : 080 2632 2565 | Email : civilexpertsltd@gmail.com | URL : www.civilexperts.co.in

Scanned by TapScanner